* An **atom** has small **particles** that make up the atom.
* An **element** is made of atoms.
* A **substance** is made out of **elements**.

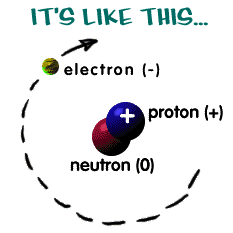
**For any element:**

* Number of Protons = Atomic Number
* Number of Electrons = Number of Protons = Atomic Number
* Number of Neutrons = Mass Number - Atomic Number

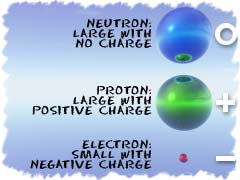
**Example Krypton:**

* Number of Protons = Atomic Number = 36
* Number of Electrons = Number of Protons = Atomic Number = 36
* Number of Neutrons = Mass Number - Atomic Number = 84 - 36 = 48

**ATOMS = BUILDING BLOCKS**

Atoms are the basis of chemistry. They are the basis for everything in the Universe. You should start by remembering that **matter is composed of atoms.**

**SMALLER THAN ATOMS?**

Are there pieces of matter that are smaller than atoms? Sure there are. **Atoms are composed of pieces like neutrons, electrons, and protons.** There are even smaller particles moving around in atoms. These super-small particles can be found inside the protons and neutrons. Scientists have many names for those pieces, but you may have heard of **nucleons** and **quarks**. Nuclear chemists and physicists work together with particle accelerators to discover the presence of these tiny, tiny, tiny pieces of matter.   
  
There are three basic parts of an atom. The parts are the **electrons**, **protons**, and **neutrons**. There are over 100 elements in the **periodic table**. The thing that makes each of those elements different is the number of electrons, protons, and neutrons. The protons and neutrons are always in the center of the atom. Scientists call the center of the atom the **nucleus**. The electrons are always found whizzing around the center in areas called orbitals.   
  
  
You can also see that each piece has either a "+", "-", or a "0." That symbol refers to the charge of the particle. You know when you get a shock from a socket, static electricity, or lightning? Those are all different types of electric charges. There are even charges in tiny particles of matter like atoms. The electron always has a "-" or negative charge. The proton always has a "+" or positive charge. If the charge of an entire atom is "0", that means there are equal numbers of positive and negative pieces, equal numbers of electrons and protons. The third particle is the neutron. It has a neutral charge (a charge of zero). 